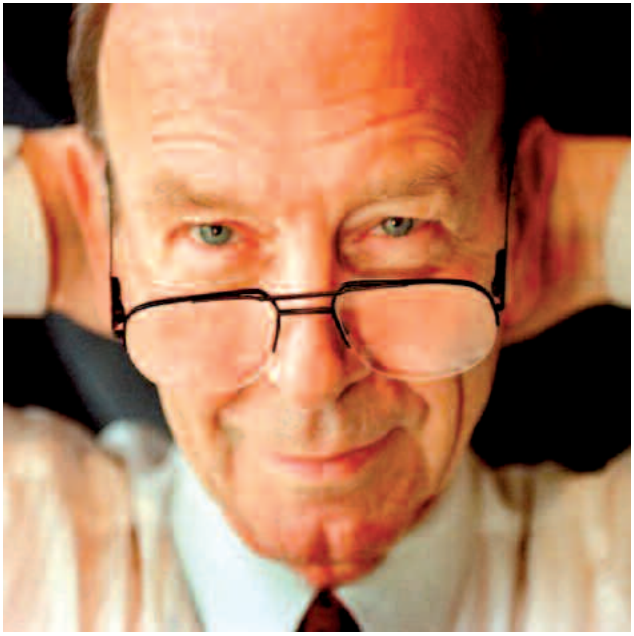
Contributions given at the event for

Anne McLaren and Donald Michie

Celebrating their lives

At the Zoological Society London
19th July, 2007



Anne McLaren and Donald Michie –

Opening Remarks	Jonathan Michie *(Anne & Donald's son)*
Welcome	Sir Patrick Bateson FRS *(President of the Zoological Society of London)*
Anne the Scientist	Ann Clarke *(Anne's colleague)*
Donald the Scientist	Stephen Muggleton *(Donald's colleague)*
Memories of Donald	Chris Michie *(Donald's son)*
Memories of Anne & Donald	Susan & Caroline Michie *(Anne & Donald's daughters)*
Letters written by	Jessica Murray *(grand-daughter)*
Memories of Anne & Donald	Laura Murray *(grand-daughter)*, Alex & Duncan Michie *(grandsons)*, Rhona Michie *(grand-daughter)* and Cameron Michie *(grandson)*
Anne the Scientist	Jim Smith *(Chairman, Gurdon Institute, University of Cambridge)*
Memories of Donald	Drogo Michie *(Donald's nephew)*
Memories of Anne	Jonathan Michie *(Anne & Donald's son)*

When asked what music she would like played when receiving the Japan Prize, Anne wrote: The two songs I would like to hear are Joan Baez's 'Where have all the flowers gone?', which is a lament not just for the Vietnam war but for all wars, past, present and future, and John Lennon's 'Imagine', which is about a world of peace and love and social harmony.

Opening Remarks by Jonathan Michie (Anne & Donald's son)

For those who don't know me – most likely those towards the back of the hall – my name is Jonathan Michie and I'm one of Anne and Donald's children.

I'm not going to welcome you here, not because I'm inherently discourteous but because we have with us someone far more eminently suitable to undertake that role, namely Sir Patrick Bateson, who is not only a Fellow of the Royal Society but is also President of the Zoological Society of London – which kindly offered to host today's event.

But before handing over to Sir Patrick, I do want to thank everyone here for having made the effort to attend, on behalf of all four of Anne and Donald's children – Chris, Susan, myself and Caroline. It does mean a lot to us to have you all here with us today to honour and celebrate the lives of Anne and Donald.

We're particularly pleased that Terri Menke has flown in specially from the States, and that she has agreed to sing 'Where Have All the Flowers Gone?', which is one of the two songs Anne asked to be played when she received the Japan Prize – Japan's equivalent of the Nobel Prize, of which Anne was and remains the only woman recipient.

I'm not even going to begin to try to explain Anne and Donald's relationship over the past 55 years. Suffice it to say that several years after they were divorced, they bought a house together on Dick Place in Edinburgh, and for several years the six of us lived together there – Anne, Donald, Chris, Susan, myself and Caroline. Dick Place would host the conference parties for all the international gatherings that Anne and Donald were responsible for. And the highlight of the parties was always Terri Menke with her guitar, singing Bob Dylan and Joan Baez songs. Anne's favourite was 'Where Have All the Flowers Gone?', which is no doubt why she chose it for the Japan Prize ceremony, describing it as 'a lament not just for the Vietnam war but for all wars, past, present and future'.

So, thank you to Terri for that, thank you to everyone else for being here with us today, and thank you to Sir Patrick Bateson for agreeing to say a few words of welcome: Sir Patrick.

Welcome from Sir Patrick Bateson FRS
(President of the Zoological Society of London)

It's appropriate that we're meeting here because Anne used to love bringing her and Donald's grandchildren to the London Zoo.

Indeed, she was here recently to see the opening of the Clore Pavilion with its wonderful Brazilian rainforest. She had several other connections with the Zoological Society of London – first of all, when she was quite young, she was given the Scientific Medal of the Society, which is a very good predictor of subsequent eminence. The Society was right in its prediction, of course, and you'll hear later about many of Anne's other honours and achievements. Subsequently she became a member of our Council and then became Vice President. So she had a long association with the Zoo, which I'm very pleased about.

I had another connection with Anne. When she retired from London and came up to Cambridge to work at the Gurdon Institute I was very keen to recruit her to a Fellowship at my College. As Provost of King's, I invited her to come so that I could talk to her about it. She gave me a grilling because she wanted to know whether we were as radical as we used to be and whether we were still a decent liberal college. She also wanted to know about our credentials in biological science. I'm glad to say that I persuaded her that King's was the right College for her to join and she was duly elected a Fellow. When she retired she became an Honorary Fellow of King's.

What was very striking about Anne was that – along with all the other things that she did – she played a very active part in the life of the College and came to many dinners. A particularly great treat for us was that she used to come to the seminars for biologists which Mike Bate and I organised. What she especially liked about those occasions was the opportunity to talk to the students. That was absolutely characteristic of her – she had a real love of the young and wanted to meet them.

I last saw Anne and Donald at a Royal Society soiree two weeks ago. It has many exhibits, as many of you will know, scattered round the

Royal Society and one of the exhibits was a "learn-how-to-become-a-surgeon". The three of us were gathered round the simulation of removing a gall bladder from a patient. You had to manipulate forceps and micro scissors – not real, it's all simulated, but it felt real. The rather alarming thing about the simulation was that when you moved the scissors to the right they went to the left. Donald and I thought we would never be very good surgeons because our hands were quivering so much, but Anne, who was very fond of dissection when she began life as a zoologist, said that she would do it but she needed a pile of books under each elbow for support. I liked the thought of surgeon Anne in a real operating theatre removing a patient's gall bladder with piles of books under her elbows.

I knew Donald much less well than I knew Anne, and he, as you will know, began his research life in the company of Alan Turing. This was in the worst days of the Second World War when Britain desperately needed to crack the codes that were being used by the Germans. Donald's work with Turing set the pattern for the rest of his career. Theirs was an innovative form of computation. As everybody knows, Alan Turing is now regarded as the founder of modern computing. The interesting thing about this particular link – and it's one of the many overlapping circles between the lives of Anne and Donald – was that Alan Turing was a Fellow of King's.

Everyone who knew Anne well was enormously fond of her, and I recently heard that the great evolutionary biologist John Maynard Smith said that the one thing he really regretted in his life was that he had never married Anne. (I'm sure his wife Sheila forgave him for that!) All of us loved her for her great humanity and wisdom, and I think it was marvellous that Anne and Donald were such good companions even after they were divorced. They stayed together and, of course, as we know sadly they died together. And all I can say is that we shall miss enormously their friendship and the insight of these two very great and remarkable people.

Anne the Scientist by Ann Clarke

(PhD student at Edinburgh in the late 60s, former Senior Scientific Officer and Project Leader at The Babraham Institute in Cambridge, reproductive immunologist and conservationist)

I speak of Anne on behalf of two groups of people, her graduate students and her fellow members of the Frozen Ark project.

Anne at the Institute of Genetics in Edinburgh nurtured, in the 1960s and 1970s, nine graduate students, of which I was one, her only female PhD student. She was a model supervisor, combining an ever-open door with a knack of leaving us alone without interference. Eric Bell summed it up when he said: *'there is no doubt Anne was terrific. She taught by example. She was absolutely clear in her thinking and precise in conversation'.*

Officially, work sessions with Anne might take 15 minutes but there were always long discussions and advice while she carried out her experiments at the microscope. For example, on allocating time for a piece of research: *'one third to do the experiments, one third for the analysis and one third to write the paper'.*

On the process of writing a PhD thesis: *'don't think about the whole thing, just one paragraph at a time, otherwise you will give up and go to the pictures'.*

On the process of how to be efficient with our time, put best by John West: *'I was so impressed that Anne could find time to work at the bench, attend meetings and spend time with her family that I decided there must be three of her'.*

We had a training that the majority of PhDs do not enjoy today. A discipline combined with a freedom to follow where the science led, an opportunity to sink or swim on our own merits. We also had an enormous amount of fun, generated by the environment Anne created for us - one of both privacy and easy access to one another. We were housed in the 'Ford Hut', a prefabricated wooden structure, put up over one weekend in the Institute grounds. Amongst its wooden floors and walls, exposed electrical sockets and fires (which today would send Health and Safety berserk) we flourished. We each had a small private closed-off space with a communal lab area for experiments and equipment. We did everything there: worked, had coffee and tea, entertained numerous visitors and socialised. The most rigorous part of our training occurred every day over coffee after lunch. This, she told me, was the best way to keep tabs on us.

Donald the Scientist by Stephen Muggleton

I had the great privilege to be supervised in my PhD by Donald Michie in Edinburgh during the early 1980s.

From that time up until his death I knew and admired Donald as a close colleague and friend.

This talk is entitled "Donald the Scientist", and Donald was indeed a great scientist as all the recent tributes to him attest. However, Donald was also a great and honest man, and a true friend to many people here.

Donald had unusual and admirable human qualities. I remember his late wife Jean saying to Thirza and me that Donald viewed himself as a hero out of an epic poem, much like Odysseus or Jason leading his Argonauts to find the Golden Fleece. And I must admit that those in his lab often felt ourselves to be like the Argonauts, battling through adverse conditions to find the Fleece, with Donald at the helm.

Donald was larger than life and always exciting to be with. You can see from his life that Donald was always on the lookout for adventure. As a teenager he was keen to be dropped behind enemy lines in China. Shortly afterwards Donald was battling with the new Colossus at Bletchley Park, finding ways to rapidly and automatically decode German High Command messages, with consequent massive reductions in British casualties.

Following the war, Donald found the most exciting new scientific area he could by pursuing the new science of genetics. His pioneering work here with Anne McLaren led to the test-tube baby technology used in hospitals today. As soon as computers were available Donald founded the first Artificial Intelligence lab in the world, heading a team in Edinburgh which built the first demonstration of an intelligent assembly robot. Donald then continued to design and develop creative and intelligent computer programs right up until the end of his life.

In everything he did Donald showed an amazing and overwhelming sense of determination. In particular, he never let politicians get in the way of what he perceived as being important goals.

He was always immensely supportive of all those students and colleagues to whom he made a commitment. For this reason he had friends and colleagues all round the world, all of whom felt his positive influence and encouragement in their work. I remember an impromptu after-dinner speech which he was asked to give at an international conference in former Yugoslavia.
The conference was on Artificial Intelligence, but Donald chose to speak on the human capacity for "wisdom". In a characteristically concise fashion he described wisdom as a mixture of intelligence and kindness. Donald was certainly highly intelligent, but also extremely kind.

All those who knew Donald will judge that he made the world a greater, and more exciting place to live in. We will all miss him greatly.

Memories of Donald from Chris Michie (Donald's oldest son by his first marriage)

Before I say anything about Donald, I'd like to thank some people for helping us to stage this event. First of all I'd like to thank the Zoological Society of London for giving us this lovely room.

I'd also like to thank Rebecca Haskins and Marek, the event managers, who have been most helpful in planning the event, contracting equipment and catering services, and dealing most efficiently with a number of special requests. There are a number of other people who deserve special thanks for securing images and producing DVDs, but the list is a long one, and I have thanked them all personally so I won't name them now.

For those of you who only knew Anne or Donald and didn't know the family, let me introduce some of those present. Donald's two brothers, James and Ian, are here, as is Anne's brother Christopher. Donald and Anne's three children are here – Susan, Jonathan, and Caroline – as are all seven of their grandchildren. There are several more Michie relatives in the room and a large contingent from the McLaren family.

This event could not have happened without a concerted and coordinated effort and I'd especially like to thank my brother and sisters for their hard work in planning and organizing. I'd like to thank Susan's daughters Jessica and Laura for managing the mailing list and finding and sequencing images for the slideshow; Jonathan's family, for putting together the memorial program under extreme deadline pressure; and Caroline's partner Paul Clyndes, an always reliable anchor in an emotional storm. I'd especially like to thank my cousins, Jake and Drogo Michie, who are going to speak about Donald.

Last but not least, I thank my partner Lissa, who is unfortunately now on a plane back to Arizona, for flying over here to be with me during the last week, for scanning hundreds of photos, and for standing uncomplaining in the rain outside the zoo café during a recent site visit. And thank you all for coming.

One of Donald's many interests was poetry. *Ulysses*, by Tennyson, was a particular favourite. It appears to be a description of Ulysses' final voyage home, but it was written to celebrate a lost friend and the poem is, among other things, about loss and the end of a long and adventurous life. My uncle James pointed out the couplet that we have reprinted in the program. I am not going to attempt to read it, but it says a lot about Donald, who he was and why he did what he did.

Memories of Anne & Donald from Susan & Caroline Michie
(Anne & Donald's daughters)

This is for Donald and Anne from me, and my sister, Caroline.

Two years ago, in my inaugural lecture, I thanked Donald and Anne for teaching me to question everything, to respect evidence and to value social justice. Today, we thank them for so much more. My overwhelming sense of them is that they cared. They cared about us, their family, and friends. They cared about science, literature, and art. They cared about the world, its people, and its future.

And they believed. They believed in those around them, and in humanity. They believed in scientific socialism, and Marxist explanations of how society has developed and how it could develop for the benefit of all, not just for the privileged few. They wanted everyone to have the futures they desired and deserved, and for the fruits of science and human activity to be equitably distributed. Donald and Anne were unstintingly optimistic – as someone who wrote to us said, "they made me believe I could do anything".

Donald was a visionary. His vision of computers before they were technically possible led him to build a learning machine out of matchboxes and glass beads. I remember it vividly. He was also driven to understand and solve everything. I will give just one recent example - how he managed his health. Donald had angina and congestive heart disease for many years. His knowledge of physiology and his reading of current evidence suggested that physical exercise would be helpful and he told his cardiologist that he had decided he should go to the gym several times a week. The cardiologist was distinctly uncomfortable and said he couldn't endorse this for a man in his late 70s but he had no evidence one way or another. Donald put his theory to the test and was going to the gym three times a week until the end. Over the last couple of years, when Donald walked into his clinic, the cardiologist used to say to him: "What are you doing here? According to the cardiograms, you should be

dead!" Donald explained to him that his regular gym visits had revascularised his heart with capillaries too small to be seen in the cardiogram. The cardiologist was convinced. Anne could see only the best in people and possibilities. I remember when I first became aware of the finality of life and went to her in tears. We had recently returned from a family holiday at Butlins, and she told me, just think about it like this: we went to Butlins for a week, but if our holiday had been cut short to five days, we would still have had a wonderful five days. And that's how I think about Anne's life. Her love of life was infectious, something that has been very evident in the hundreds of messages we have received. Here is one example from a colleague who was at a dinner with Anne a few days before she died:

"Anne was on excellent form - as sparkly-eyed and incisive as always. I expressed a rather jaundiced opinion of teenagers and their (to my mind) materialistic motivations. Anne immediately rose to their defence, citing her grandchildren. She was firmly of the view that young people truly cared about those less fortunate than themselves, and about big contemporary issues like global warming. As ever, I hope I gained a little wisdom, and lost a little cynicism, through a conversation with her."

Anne was always thinking of others, putting their needs before her own. If there were things to be done, and fun to be had, she was tireless. She was interested in others and always started from who they were and what they wanted to achieve.

A colleague from Cambridge wrote to us: "Working with Anne was the best decision of my scientific career. We shared a passion for germ cells and when we were together it really felt like two teenagers having fun, discussing about experiments and results until deep in the night. Sometimes meeting at 11pm!"

A family member wrote: "I liked to listen to Anne. She never rambled. Every single word was important and always in place. Her ability to analyse, unravel and explain complicated propositions so that I, and even a child, could understand is something at which I never ceased to marvel."

Anne had great courage and never missed an opportunity to speak out to make things better. Two years ago, I accompanied her to receive the Japan prize, which is the East's equivalent of the Nobel Prize. She used her

acceptance speech to point out the wasted potential for humanity of not encouraging women into science. This courage was matched by a fierce independence. Anne had recently booked our annual family ski-ing holiday. Last year was no exception: Anne skied when the rest of us were taking refuge from the weather. And she never, ever allowed any of us to carry her skis!

I only have time to make one last point, and that is Anne's selflessness. In a recent radio programme she said "I'd like to see things changed for the better. I'd like to see society changed for the better. I'd like to see science used to help people and anything that I can do towards that end I will try to do - but usually rather ineffectually."

In another radio programme, she said: "I would have been a better mother if I hadn't been a scientist. I would have been a better scientist if I hadn't been a mother." Anne was both a great mother and a great scientist.

Both Donald and Anne shared a passion and a vision for science and for society, and the way in which each can contribute to the other. Their amazing love for each other survived two separations – just last year, they had bought a house together for the third time and were very, very happy. We miss them both desperately.

I will end with some words from Bertolt Brecht, a socialist playwright and poet:
"While you are alive, don't say never!
… things won't stay as they are …
So, if you are beaten, you just rise again!
If you think you have lost, fight on!
Once you have seen where you stand,
There is nothing can hold you back again –
For those defeated today will be the victors tomorrow
And from 'never' comes our 'today'."

Anne chose two songs to be played when she received the Japan Prize. She explained her choice: "John Lennon's 'Imagine', which is about a world of peace and love and social harmony, and Joan Baez's 'Where Have all the Flowers Gone?' which is a lament not just for the Vietnam War but for all wars, past, present and future." We will now listen to 'Imagine'.

Letters written by Jessica Murray, 23 (Donald and Anne's grand-daughter)

These were read out by Andrew Murray, Jessica's father

Dear Donald,

I remember when I was a small child I used to find you intimidating. At family dinners, you would pose a logic problem at the beginning and question me about it during the meal. While many grown ups would ask me questions, what was different about you, is that you were deeply interested in my answers. Like Anne, you took children very seriously. What would scare me was the idea that you wanted something more insightful than I could give you. I have such a clear image of you, with your fingers pressed against your temple, drawing out a problem for me to solve on a napkin over dinner. What I think I didn't realise then, is that you weren't looking for a right or wrong answer; you were trying to teach me how to think, rather than what to think.

As I grew older, you would become interested in all the fads I picked up; you were knowledgeable about everything! As long as I was committed to talking extensively and following every point through to its logical and exhaustive conclusion, you could – and happily would – talk about anything with me.

Since you moved back in with Anne, I got a chance to know you in a way that was different from the image of the intense and intimidating grandfather of my childhood. I can now hear your chuckle so clearly. I still picture you with your fingers to your temple, sitting at your desk in Dunollie Road chuckling away as I helped you to organise your addresses and joked about what a bad secretary I'd make. I'm so glad I got to spend that time with you; even though all that reorganisation seems futile now, it gave me an opportunity to spend time with you.

You will always be someone who challenged me. When I was with you, you would never make idle chitchat. I would be lying if I said our conversations were always comfortable; I would often be scared that I would slip up and say something to reveal me as not as clever as you thought I was. But, uncomfortable as they may have been, talking to you developed me. Every single conversation I had with you, challenged some preconceived belief that I had, and left me with a greater insight on whatever topic we

were discussing. No conversation I had with you was a waste of time; I'm glad you never asked me about how my weekend was or what I thought about the weather; you never wasted a conversation we had and I'm sure I learnt more from you than many people learn from their grandfathers in twice as long. What I learnt from you in the past six months was that you weren't scary at all, just deeply interested in the thought processes of others. I hope that you valued the time that we spent together over the last few months as much as I do.

Dear Anne,

Even though there are nearly sixty years between us, you always made me feel that we were part of a team, like we were allies in some mischievous adventure that was our secret from the outside world. When we went on summer holidays, you would always take me snorkelling. In the mornings you would give me the mission of sneaking bread from the breakfast bar to feed to the fish on our snorkelling trip. I clearly remember the naughty twinkle in your eye when I managed to get you a bread roll, which you snuck into your handbag. When you lived in a room in our house you would wake me up, long past my bedtime, to come and watch nature programmes with you. You would hold my hand and we would sneak up the stairs, smiling at our naughtiness as we crept past my parents' bedroom. You would tell me that jam donuts were healthy because they were full of calories and children needed lots of calories, even though my mum was preaching healthy eating. Anne, we were such a team.

When I was six I decided that I wanted to be called Christine, not Jessica. No one else took

me seriously, except you. Months later, when I'd forgotten all about it, you were still calling me Christine. When I decided I wanted to be a cat, you'd lay out saucers of milk for me and when I was 15 and wanted to be an artist you paid for me to go all the way to Denmark to see an art exhibition you'd loved.

You always took me seriously. Even when I was a child, talking nonsense, you'd always carefully listen to what I had to say. Whether I was a dreamy child or an awkward adolescent, you never stopped listening to me, understanding me and taking the time to know exactly what I wanted from life.

When I was a child every time I was with you I felt that I was part of a magical world created just for the two of us and I never appreciated how lucky I was to have the undivided attention of someone as magnificent as you; to me, you were just my Anne.

You are at the centre of my earliest and dearest memories, and I will never, ever let them go. You are part of my heart, you are the centre of my family; you are the core of who we are. Even though my children will never have the chance to meet you, I will never run out of memories of you to pass on to them. Your death has brought me more pain than I knew was possible and I can't imagine a day that I don't miss having you in the world, but it has made me realise how lucky I was to be so close to someone so special. Every memory of you – from when you'd let me play with baby mice at your lab, to when you explained your family tree to me over dinner in Rome – is like a little treasure to me. I have no depressing memories of you; every memory I have of you is a happy one. When the pain of losing you has faded, I know that you'll have left me with a lifetime's worth of memories that make me smile.

Memories of Anne & Donald from Laura Murray, 18 (grand-daughter)

I remember when I was younger and feeling very insecure about myself, Anne came to visit me in hospital and brought me a box of chocolates.

She told me that I was allowed to eat one a day on the condition that every time I ate one, I gave myself a compliment. Anne always approached problems in this practical, positive way and made you feel you could solve anything. My mother is the same. I hope I will continue this optimistic approach to life. Donald's way of cheering me up while I was in hospital was to send me a joke in the post every day for two months.

Whenever I showed enthusiasm for anything, Donald seized on it and took every opportunity to encourage me. For example, when I used to write poetry, Donald would send me poetry books in the post or research he had done on how to write a classical poem. He would then grill me on my poetry writing when I next saw him. He challenged me, but he also showed me that he valued me and what I was trying to do.

Anne loved her family. She was more than a grandmother to us – she was a third parent. Growing up, me, my brother and sister would stay with her at weekends and she would regularly take us to the zoo, the science museum or the natural history museum. She played a huge part in my childhood and I will always remember the constant support she gave me. Earlier this year, I went to Canada with her when she was awarded the March of Dimes annual award for Developmental Biology. This was the first time that I realised she had done the science that allowed IVF to be developed. Anne never talked about her achievements, not even to her own family. The other thing that really impressed me on this visit was her acceptance speech. The woman presenting the award had never presented it before and was obviously very nervous. Anne used her acceptance speech to thank and praise the woman to put her at ease, rather than to talk about herself.

Anne is a huge role model to me. She set an example of how much one person can achieve in a lifetime. Anne's passions in life were her work and her family; she never cared about money. In today's materialistic society, people like her are increasingly hard to find. Compassionate, selfless and always supportive, she has set the standard for mothering and grand-mothering as well as in developmental biology. I will always miss her and love her.

Memories of Anne & Donald from Alex Michie, 17, and Duncan Michie, 11 (grandsons)

Our Grandparents' Qualities

Anne – Generosity is wearing a ski coat which is older than you are, held together by nothing more than Sellotape and safety pins, whilst on a hugely expensive skiing holiday that you paid for, for your children, your children's partners, your grandchildren and your grandchildren's friends.

Donald – Determination is staying up all night to devise a mathematical formula which means you will always win with geese in fox and geese, simply because your grandchild beat you at it.

Donald – Intelligence is creating machines that are several times better than the American versions with several times less money.

Anne – Bravery is skiing at seventy-nine years of age, with osteoporosis and several crushed vertebrae.

Anne – Talent is raising three excellent children as a single parent, whilst simultaneously being one of the most successful female scientists of all time.

Donald – Belief is sending your nine year old grandchild a fifty page academic research paper on whether adjectives are needed in poetry.

Donald – Humbleness is never, ever, assuming infallibility; giving all opinions voiced equal weight and consideration, no matter how young, or how ignorant, the person who voiced the opinion.

Anne – Humility is never being too self-important to apologise, even when you have done nothing wrong, you merely want to ease tensions in the family.

Admiration is one of the many feelings we have for our grandparents.

Love is another.

Memories of Anne & Donald from Rhona Michie, 12 (grand-daughter)

I want to start off by saying how amazing Anne and Donald were.

I remember so many fantastic times I spent with them, doing and saying things. I remember laughs and outings. They were so special to me and everyone around them. And I'm sure you'll agree when I say that it was impossible not to get along with them.

The week before the accident, Anne took me shopping for a new bike for my birthday. We went round to the shop and went straight up to the counter and asked for one. Soon I had a brilliant brand new bike. I couldn't thank her enough for it – it was amazing.

She often had me and Cameron round to her house for weekends – then she took us to the zoo, museums, to the park and did something we really looked forward to – bought us doughnuts. And all the holidays she took us on were so much fun.

Donald was a much more indoors sort of person – but it was impossible not to have fun with him. I remember long discussions or debates about numerous scientific or mathematical subjects. We exchanged many riddles and I remember two different games I would play with him. One was taking it in turns to make the other laugh – which started off very hard with Donald's absurd facial expressions but got easier the more I practiced. The other was a game where you had a minute to think of as many insects or mammals as you could and then try and beat that score. I remember many laughs at that.

Also I enjoyed long conversations with Sophie, Donald's computer program.

I loved them both very much and, in short, they were the best grandparents I could ever imagine or hope for.

Memories of Anne & Donald from Cameron Michie, 10 (grandson)

This was read out by Carolyn Downs, his aunt

Me and Donald always used to play chess. When I finally beat him he looked really proud.

Anne always enjoyed taking me and Rhona to the zoo – she always seemed so pleased that we really enjoyed it. I always looked forward to looking at the gorillas and once Anne was really pleased at the look on my face when she told me there was a new gorilla walkthrough.

Donald also loved animals, and gave me lots of fun animal toys.

Anne loved doughnuts! She always let me and Rhona have some every time we came round!

I once asked Donald if he thought there was a god, and he produced a very confusing, scientific, fact-filled answer which even now I couldn't explain!

For my most recent birthday Anne gave me a wonderful proper microscope. Ever since I have been looking for things to see through it.

All in all, they were the best grandparents I could have hoped for!

Anne the Scientist by Jim Smith (Chairman, Wellcome Trust/Cancer Research UK Gurdon Institute, University of Cambridge)

People sometimes talk of 'scientific lineages', in which scientist X worked previously with scientist Y who had worked, of course, with Z.

The establishment of a lineage of this sort is often seen, rightly, as a mark of esteem, and looking before me I can see many members of Anne McLaren's scientific lineage who do enormous honour to her name. But lineages also imply families, and in the case of Anne I think what I am really seeing is her scientific family, who have a love and affection for her that goes way beyond the normal feeling that a lab member has for his or her boss. I think this legacy is as important as all the other achievements we have heard and read about in the last week and a half.

Anne moved to the Wellcome/CRC Institute in 1992, and worked in Cambridge for 15 years. This was therefore a very significant period in her scientific life, not least because to Anne the idea that she should 'slow down' after retirement was anathema to her. To ensure this did not happen she was during her time at the Institute: Foreign Secretary of the Royal Society; President of the British Association for the Advancement of Science; a member of the Human Fertilisation and Embryology Authority; President of the Association for Women in Science and Engineering; and much more besides. She was also a strong advocate for stem cell research, especially in Cambridge, where she was involved in the setting up of the new stem cell institute. Doing just one of these jobs is exhausting – look at the travel, the endless meals, just being nice all the time, that is involved in being Foreign Secretary of the Royal Society. To do them all is nothing short of miraculous.

And all of these were secondary to her science. I'm not sure that we gave Anne enough space at what became the Gurdon Institute, but she made the most of it both within her small group and in collaboration with colleagues such as Azim Surani and Magdalena Zernicka-Goetz. Her work focussed on primordial germ cell formation, and she always worked at the highest level. Her most recent paper showed that the different modifications that the DNA of male and female germ cells undergoes is largely due to their environment within a male or female animal rather than to their chromosomal constitution as XX or XY: a fascinating and important result.

When I arrived at the Institute in 2000, one of the real attractions was the opportunity to renew my friendship with Anne. We had first met in London in 1977, when I was a PhD student with Lewis Wolpert, and even though we didn't do mammals in Lewis's lab, I seemed to bump into Anne quite often. I remember one Sunday morning in spring 1978, when we met in the overnight queue for tickets to see Bob Dylan; and I saw her later that same day in Camden Lock market, selling a socialist magazine. For me these meetings marked her out as a special person: a Bob Dylan fan or perhaps the mother of one, bringing her child breakfast, and certainly someone with the right political attitude.

Like everyone, I was in awe of Anne and her science, but the most important thing to me as Chairman of the Institute was her knowledge and quiet wisdom. We had a Group Leaders' meeting on the day before she died, and as always I found myself glancing at Anne to see whether the decisions we were making were sensible or not. She always said her piece, of course, but she had a way of conveying additional information at other points in the discussion with that smile or a raise of the eyebrow. Anne was also invaluable at times when it came to negotiating Cambridge 'politics'. I'll really miss her for this, as well as for her scientific knowledge, her wit, and her deep understanding of human nature. In some conversations it wasn't necessary to be terribly specific about a particular problem; she knew what was going on and could offer advice that was sensible and compassionate and sometimes surprising.

Some of you will know that we organised a meeting last April to celebrate Anne's 80th birthday. I'm so glad we did this. The symposium and the dinner afterwards clearly demonstrated the great affection everyone in the scientific community had for Anne, and I think she enjoyed it as much as we did. A description of the meeting is on our web site, along with messages from many of her friends and colleagues.

We shall miss Anne enormously. It seemed to us that she was indestructible, with the intellectual energy and late-night stamina of a person 50 years younger. This was certainly true at our Institute retreats! People have described her as a role model for women scientists, but the truth is that she was a role model for all scientists, someone to look up to and to attempt to emulate. She will be a tough, an impossible, act to follow.

Memories of Donald from Drogo Michie (Donald's nephew)

This spring James – Donald's brother, my father – was diagnosed and treated for a serious illness.

During that month my brother Jake, my sister Flora, and I were with Donald almost daily.

In the early weeks at hospital, Donald and I immediately recognised we were fellow compulsive activists and fell into a morbidly humorous double act, best described as 'Bad cop/Bad cop!'

We shared a belief that by cajoling, pushing, flattering, and shadowing James' doctors, registrars and nurses we could quicken the sometimes ancient wheels of the NHS. In this fellowship of purpose, Donald and I stalked the corridors of Charing Cross Hospital in the resolute belief that by sheer force of will we could somehow better the treatment and thus quicken his recovery.

You will not be surprised to hear, for example, that when a Junior Doctor in conversation with Donald was foolish enough to second guess him mid-sentence, they were counter-interrupted with the observation that: 'Unless you are blessed with the unproven gift of telepathy, I suggest you allow me to finish'!

Later that day, Donald found me in a fretful slump and with a wry smile said 'Ah Drogo, we have a condition in common, we share a Zucatgetien tendency'! I looked up in bafflement and he continued, laughing 'surly you knew the term for a person who's incapable of pause or satisfaction until a project is completed'!

Donald was ever applying his intellect, cross discipline knowledge and ceaseless capacity for research to better understand and contribute to Dad's treatment. Jake, Flora and I, like many before us I imagine, were often left in a slipstream of incomprehension by the technical depth of his conversation. Quite often he left the Doctors looking like rabbits in the headlights, so advanced was his grasp of the matters in hand. I once overhead a Doctor who had been caught short in his case knowledge remark to a colleague that he had just been 'Professored'!

But even in Dad's reduced state, his brotherly competitive instincts were not diminished. He wasn't going to let Donald assist his recovery without some mischief. So James raised his game to keep his big brother on his toes, caught pneumonia, forgot how to sleep, went a little mad and spent the best part of ten days trying to push a gold coin into Charon's palm!

Donald, faced with this sudden change, quoted research papers that had shown it was statistically proven that patients in life threatening

conditions have a much higher chance of recovery if they were surrounded by family and friends on a near constant basis. And that is exactly what Donald did.

But Donald's presence at that time had little to do with dutifully playing his part in the making up the numbers.

His quiet, still, vigil at his brother's bedside during the worst weeks was ceaseless; morning to evening, day into day, week into week, he would sit, in the knowledge that whenever James came to he would not be alone but instead, wake to see his brother.

Donald was there, gently holding out his hand in deep brotherly love, clasping the golden thread that holds the truest of friends together, and refusing to let go. Diablos and Jaspistos were not going to be defeated!

I once had the sense that human experience in all its minutiae was to Donald raw data to be filtered and given code in the pursuit of further advancing machine intelligence. But in those weeks we spent together Donald surprised me in many ways, many times.
He was as ever, formidable, single minded and dogged but his eyes burnt bright with compassion, friendship and love.

In times past I thought of Donald as a Professor before Uncle. Recently I was lucky enough to get to know a great and true friend who happened to be a Professor.

Memories of Anne from Jonathan Michie
(Anne & Donald's son)

Anne and Donald were both remarkable people. We've heard already from some of their colleagues and family members just how special they both were.

But I'd like to add that it isn't without reason that the term 'mad professor' has become an accepted term within the English language – and both Anne and Donald were professors, even though Anne never used the title.

In the case of Donald, the point is nicely illustrated by a story his brother Ian told me at one of the Steele's Road parties. It was when Donald was still at school – which suggests that he was destined to be a 'mad professor' from an early age. Donald was due to return home from his boarding school at the end of term, but failed to appear at the expected hour. It turned out that he'd got the wrong train and had ended up in Wales. Now, for the younger members of the audience I should explain that in the 1930s you couldn't just send an email or a text-message. You couldn't send an email because, well – Donald hadn't yet invented the computer! And it was only reading the obituaries last week that I discovered that predictive text messaging also derives from research by Donald. Instead, you had to send a telegram, where you paid per word, and Donald only had enough money for five words, which had to include his name. Several hours later, still no sign of Donald, a motorbike drew up and handed over a telegram which read simply:

> 'Inadvertently went to Wales – Donald'

Seventy years later, last week I received a letter from the Master of Donald's College, Balliol, expressing the College's condolences for the loss of both Donald and Anne, in which the Master, Andrew Graham, added the following:

> 'About a year ago the phone rang. I picked it up and a voice asked for the Master's Secretary. I explained he was straight through to me, and he said, "It's Donald Michie." I had never met your father, and we have over 8,000 Old Members, so I felt I was doing rather well when I replied, "You used to work on artificial intelligence, didn't you?" The immediate come-back was, "What do you mean – <u>used</u> to?"!

In the case of Anne, I remember her grandchildren being amused a few years ago when the phone rang, she answered it, and it was Buckingham Palace inviting her to have lunch with the Queen. "Yes, I'd love to", she said, "I'll just get my diary", followed by "Oh bother! I'm really rather busy at the moment, but thank you anyway" – and she put the phone down… I suppose it's not many kids can go to school and say their granny was invited to lunch with the Queen, and even fewer who can say their granny replied "I'd love to, but I'm just too busy"…

I said that Anne never used the title 'professor', and neither did she use the title 'Dame', and recalling the question of titles reminded me of an amusing story when we were quite young children. Every summer and winter we went to stay with Anne's mother in North Wales, and one year a rather unpleasant, reactionary woman had managed to get herself invited to lunch. It became apparent to everyone, not least Anne's mother Christabel, that allowing this woman to get herself invited had been a mistake. In any case, at one stage she turned to Anne and asked, "Now tell me, Anne, is it 'Miss' or is it 'Mrs'?" We all turned to Anne, wondering what she would reply. Anne simply looked at the woman, and said: "It's Doctor".

I asked my wife Carolyn what her memory was of Anne, and she replied that it was one of beauty – not just the striking physical beauty, but also the inner beauty of Anne's personality and character. Those sentiments have been echoed in many of the letters of condolences that we've received over the past few days, in which people have also recalled Anne's generosity, selflessness, optimism, wit and sense of fun. These characteristics are nicely illustrated, I think, by the story of Anne being run over almost 20 years ago while she was bicycling to work – as she did every day. Anne was quite badly hurt and had to stay in hospital for some time. When the police insisted that she write an official statement of what happened, Anne wrote – in a style many of you will no doubt recognise:

> "*Either,* the driver failed to see me; *or,* he saw me – and ran me over anyway."

In 1989, Radio 4 broadcast an interview with Anne entitled 'Of Mice and Mothers', in which Anne said that if she hadn't been a mother then she was sure she would have been a better scientist, and if she hadn't been a scientist then she was sure she would have

been a better mother. From what we've heard already from her scientific colleagues it is clear that *no-one* could have been a better scientist than Anne. And I'm pleased to say that as soon as we finished listening to the programme with Anne in 1989, my younger sister Caroline reassured Anne that *no-one* could have been a better mother than her. Anne was the most supportive mother imaginable. I only have time to give one example, but I think it should suffice.

It was when I was about 10 years old – a little younger than Duncan is now, around Cameron's age. We had to do a project for school on any topic we wanted. Most of the class decided to write about the Roman Empire, or the Battle of Bannockburn. I went home and told Anne that I wanted to write a project on the genetic determinants of mouse hair colour – since as Ann Clarke has already recounted, our weekends were spent in the lab with Anne, as she worked, and we played with the mice. I told Anne that I'd write about each type of mouse on the left-hand page, and on the right-hand page I'd stick an example of the mouse with the relevant hair colour. Now, *any* other mother would have said "Don't be so bloody stupid – you can just draw the mice!", but Anne, of course, replied "Yes, what a very good idea", and drove me to the lab, helped me pick out the relevant mice, and killed and skinned them. I went to school the next day with my school-bag full of mice-skins. And there wasn't much written that day about the Roman Empire or the Battle of Bannockburn, as most of the class were crowded round my desk, watching me write about the recursive and dominant genes on the left-hand page, and then stretching the relevant mouse-skin over the right-hand page, and sticking it in. That year, the school established a prize for the most original project. It was the first time I'd ever won anything, and academically I've never looked back – and of course, I owe it all to Anne.

Anne dearly loved all her family – her children and grandchildren, her sister and brothers, and nieces and nephews – but none more so than her younger brother Christopher, so we were all delighted when he agreed to give the speech in Anne's honour at her 80th birthday party recently. In his speech Christopher argued – or rather, pointed out – that through her work Anne had significantly improved the lives of countless people across the planet, and that while she wasn't the first person in history of which that's true, and nor will she be the last, it is nevertheless rare to

be able to come across anyone about which that can honestly be said, and that we were all therefore fortunate indeed to know and love Anne.

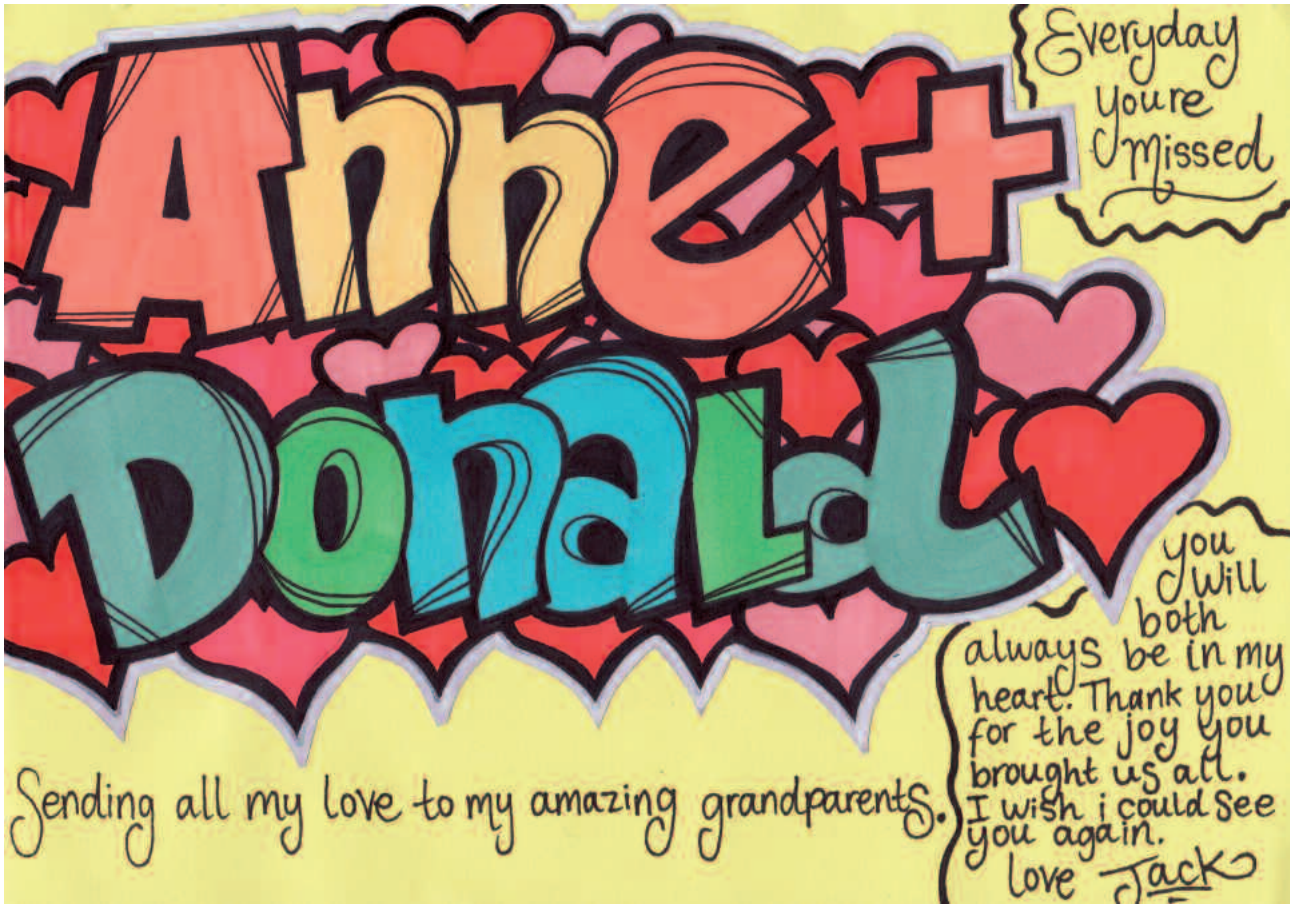
In addition to this, though, what has become clear from the tributes that have been pouring in from all corners of the globe is that Anne inspired many others who are now more determined than ever to continue the work that Anne did.

So not only did Anne make the world a better place when she was with us, but even though she is now gone, the lives of huge numbers of people across the world will continue to be improved in the future thanks to the impact that Anne had on others.

And you really *cannot* ask any more of anyone, than that.

My task today was to recall my memories of Anne. But most of what I've said would apply equally to Donald. And we're going to end the proceedings by singing the song that Donald and Anne chose for their wedding in 1952 – Jerusalem. Anne's niece Caroline McLaren has kindly agreed to lead the singing, and has arranged for Ian Le Grice to play the music.

Donald and Anne on their wedding day.


Anne+
Donald
Everyday
You're
Missed
you
Will
both
always be in my
heart. Thank you
for the joy you
brought us all.
I wish i could see
you again.
love Jack
Sending all my love to my amazing grandparents.

Memorial Funds

Anne and Donald will be remembered with love by their children Chris, Susan, Jonathan and Caroline, their grand-children Sarah, Miles, Jessica, Jack, Laura, Alex, Duncan, Rhona and Cameron, and 'in-laws' Carolyn Downs, Paul Clyndes and Andrew Murray. They nurtured in us the values of compassion and enquiry and we will seek to continue their work to create a better world, based on peace, internationalism and social justice.

We believe the most appropriate way to honour Anne and Donald's memory is through a fund to support research through studentships and fellowships.

The Donald Michie Memorial Fund is administered by Balliol College, Oxford, and is used to award The Donald Michie Memorial Prize each year to the best student in computer science, as well as to make other awards to computer science students at Balliol as appropriate. The first, 2007-08 Donald Michie Scholarship award went to Emily Middleton who is writing a bridge-playing programme for her Master's in Computer Science. Cheques should be made out to 'Balliol College' and sent to Alastair James, Development Director, Balliol College, Oxford OX1 3BJ. To make an electronic funds transfer, contact alastair.james@balliol.ox.ac.uk

Please indicate that any funds donated are for the Donald Michie Memorial Fund.

The Anne McLaren Memorial Fund is administered by Christ's College, Cambridge, and is used to endow an annual event, activity or the work of a scholar in a relevant field. Cheques should be made out to 'Christ's College' and sent to Elizabeth Norris, Fellow, Christ's College, Cambridge CB2 3BU. To make an electronic funds transfer, contact Elizabeth at ean21@cam.ac.uk
Donations can also be made on-line through www.justgiving.com/annemclaren

Please indicate that any funds donated are for the Anne McLaren Memorial Fund.